

EPA Technical Support Project  
Ground-Water Forum on Contaminants in Fractured Bedrock  
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ABSTRACT

**Hydrogeologic Appraisal of the Cayuga County  
Ground-Water Contamination Superfund Site near Auburn, NY**

*by*

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The U.S. Geological Survey (USGS) has provided technical assistance since 2001 to the U.S. Environmental Protection Agency (EPA) in an investigation of the presence of chlorinated solvents (trichloroethylene and degradates) in ground water in the Middle-to-Lower Devonian and Upper Silurian carbonate bedrock southwest of Auburn in Cayuga County, NY. The objective of the work is to characterize the stratigraphy, fracture patterns, and water-bearing zones that are observed in boreholes as part of a regional appraisal of the plume distribution and the potential pathways of contaminant movement in the karst bedrock. The EPA has installed 11 monitoring wells that tap multiple water-bearing zones in the carbonate-aquifer system, and the USGS has collected advanced borehole-geophysical logs in 37 wells (including the EPA wells) to compliment the EPA data program. Pieziometric and water-quality data from the wells indicate that contaminants may have migrated in the bedrock as far as 7 miles toward discharge areas that are in an adjacent surface-water basin. The geophysical data have been used to define the stratigraphy, lithology, and fractures penetrated by the wells, and flow zones under ambient open-hole conditions. The data indicate the need for a multiple-level monitoring design that would isolate discrete pressure-head and water-quality monitoring zones between multiple packers within wells that are currently perturbed by open-borehole flows.

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